TETON DISTRICT HEALTH OFFICER

PUBLIC HEALTH RECOMMENDATION #12

RECCOMMENDING THAT INDIVIDUALS WITHIN TETON COUNTY, WYOMING TO WEAR FACE COVERINGS IN CERTAIN PLACES, WITH EXCEPTIONS

WHEREAS, Dr. Travis Riddell, serves as the Teton District Health Officer pursuant to Wyoming Statute § 35-l-306(a); and

WHEREAS, Dr Travis Riddell, the Teton District Health Officer, issued Teton District Health Order #21-5 on August 26, 2021, requiring individuals to wear face coverings in certain places with exceptions. The Jackson Town Council extended the health order within the Town of Jackson until December 31, 2021. The Teton County Board of County Commissioners extended the health order in the unincorporated areas of Teton County until December 31, 2021; and

WHEREAS, Teton County, Wyoming remains listed as an area of "high" transmission by criteria established and data maintained by the U.S. Centers for Disease Control and published daily on the CDC's COVID Data Tracker website; and

WHEREAS, The U.S. Centers for Disease Control and Prevention (CDC) have gathered peer-reviewed data throughout the pandemic[1] which have categorically demonstrated the safety and efficacy of masks including the following experimental and epidemiologic evidence:

- Masks are primarily intended to reduce the emission of virus-laden droplets ("source control"), which is especially relevant for asymptomatic or presymptomatic infected wearers who feel well and may be unaware of their infectiousness to others, and who are estimated to account for more than 50% of transmissions.[2] Multi-layer cloth masks block release of exhaled respiratory particles into the environment,[3-6] along with the microorganisms these particles carry.[7,8] Cloth masks not only effectively block most large droplets (i.e., 20-30 microns and larger)[9] but they can also block the exhalation of fine droplets and particles (also often referred to as aerosols) smaller than 10 microns ;[3,5] which increase in number with the volume of speech[10-12] and specific types of phonation.[13] Multi-layer cloth masks can both block up to 50-70% of these fine droplets and particles[3,14] and limit the forward spread of those that are not captured.[5,6,15,16] Upwards of 80% blockage has been achieved in human experiments that have measured blocking of all respiratory droplets,[4] with cloth masks in some studies performing on par with surgical masks as barriers for source control.[3,9,14]

- Studies also demonstrate that cloth mask materials can reduce wearers' exposure to infectious droplets through filtration, including filtration of fine droplets and particles less than 10 microns. Multiple layers of cloth with higher thread counts have demonstrated superior performance compared to single layers of cloth with lower thread counts, in some cases filtering nearly 50% of fine particles less than 1 micron .[14,17-29]

- At least ten studies have confirmed the benefit of universal masking in community level analyses: in a unified hospital system,[30] a German city,[31] two U.S. states,[32,33] a panel of 15 U.S. states and Washington, D.C.,[34,35] as well as both Canada[36] and the U.S.[37-39] nationally. Each analysis demonstrated that, following directives from organizational and political leadership for universal masking, new infections fell significantly. Two of these studies[34, 35] and an additional analysis of data from 200 countries that included the U.S.[40] also demonstrated reductions in mortality. Another 10-site study showed reductions in hospitalization growth rates following mask mandate implementation [37]. A separate series of cross-sectional surveys in the U.S. suggested that a 10% increase in self-reported mask wearing tripled the likelihood of stopping community transmission.[41]

- Investigations of "real world" COVID transmission events demonstrating the benefits of masks include:

    - An investigation of a high-exposure event, in which 2 symptomatically ill hair stylists interacted for an average of 15 minutes with each of 139 clients during an 8-day period, found that none of the 67 clients who subsequently consented to an interview and testing developed infection. The stylists and all clients universally wore masks in the salon as required by local ordinance and company policy at the time.[42]
    - In a study of 124 Beijing households with $\geq$ 1 laboratory-confirmed case of SARS-CoV-2 infection, mask use by the index patient and family contacts before the index patient developed symptoms reduced secondary transmission within the households by 79%.[43]
    - A retrospective case-control study from Thailand documented that, among more than 1,000 persons interviewed as part of contact tracing investigations, those who reported having always worn a mask during high-risk exposures experienced a greater than 70% reduced risk of acquiring infection compared with persons who did not wear masks under these circumstances.[44]
    - A study of an outbreak aboard the USS Theodore Roosevelt, an environment notable for congregate living quarters and close working environments, found that use of face coverings on-board was associated with a 70% reduced risk.[45]
    - Investigations involving infected passengers aboard flights longer than 10 hours strongly suggest that masking prevented in-flight transmissions, as demonstrated by the absence of infection developing in other passengers and crew in the 14 days following exposure.[46,47]

- Research supports that mask wearing has no significant adverse health effects for wearers. Studies of healthy hospital workers, older adults, and adults with COPD reported no change in oxygen or carbon dioxide levels while wearing a cloth or surgical mask either during rest or physical activity.[58-50] Among 12 healthy non-smoking adults, there was minimal impact on respiration when wearing a mask compared with not

wearing a mask; however, the authors noted that while some respiratory discomfort may have been present, mask use was safe even during exercise.[51] The safety of mask use during exercise has been confirmed in other studies of healthy adults.[52-54] Additionally, no oxygen desaturation or respiratory distress was observed among children less than 2 years of age when masked during normal play.[55] While some studies have found an increase in reports of dyspnea[56] (difficulty breathing) when wearing face masks, no physiologic differences were identified between periods of rest or exercise while masked or non-masked;[54] and

WHEREAS, the CDC on July 27, 2021 issued recommendations concordant with those below on July 27, 2021 and updated them through October 21, 2021.[55]

WHEREAS, as of December 19, 2021, Teton County is determined by the CDC to remain an area of "high" COVID-19 transmission.[56]

WHEREAS, COVID-19 transmission is currently increasing in the U.S. and is expected to rise further in the upcoming weeks due to the proliferation of the Omicron variant. This will likely coincide with an increase in domestic and international travelers visiting Teton County during the winter tourist season.

NOW, THEREFORE, IT IS HEREBY RECOMMENDED that persons within Teton County, Wyoming, effective January 1, 2022, should wear Face Coverings as described below:

1. "Face Covering," as used in this Recommendation, means a covering made of cloth, fabric, or other soft or permeable material, without holes, that covers the nose and mouth and surrounding areas of the lower face.

2. Everyone 2 years or older who is NOT fully vaccinated should wear a Face Covering in indoor public places. Everyone 5 years and older is eligible for vaccination, free of charge, except those with a specific medical contraindication.

3. In general, you do not need to wear a Face Covering in outdoor settings. During periods of "high" or "substantial" transmission, consider wearing a Face Covering in crowded outdoor settings and for activities with close contact with others who are not fully vaccinated.

4. People who have a condition or are taking medications that weaken their immune system may not be fully protected even if they are fully vaccinated. They should continue to take all precautions recommended for unvaccinated people, including wearing a well-fitted Face Covering until advised otherwise by their healthcare provider.

5. If you are fully vaccinated, to maximize protection and prevent possibly spreading COVID-19 to others, wear a Face Covering indoors in public during times of "high" or "substantial" transmission.

6. Wearing a Face Covering over your nose and mouth is required by the U.S. Government on planes, buses, trains, and other forms of public transportation traveling into, within, or out of the United States and while indoors at transportation hubs such as airports.[57]

7. The CDC website, "Your Guide to Masks" provides further recommendations for selecting a mask, how to wear a mask, how to clean and store reusable masks, and for special considerations such as children, people with disabilities, people with beards and for cold weather.[55]

DATED this 20 day of December, 2021.

Travis Riddell, M.D.
Teton District Health Officer

References

1. U.S. Centers for Disease Control and Prevention. Science Brief: Community Use of Cloth Masks to Control the Spread of SARS-CoV-2Available: https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/masking-science-sars-cov2.html [accessed: 08/19/2021]
2. Johansson MA, Quandelacy TM, Kada S, et al. SARS-CoV-2 Transmission From People Without COVID-19 Symptoms. JAMA Netw Open. Jan 4 2021;4(1):e2035057. doi:10.1001/jamanetworkopen.2020.35057
3. Lindsley WG, Blachere FM, Law BF, Beezhold DH, Noti JD. Efficacy of face masks, neck gaiters and face shields for reducing the expulsion of simulated cough-generated aerosols. Aerosol Sci Technol. 2020; in press
4. Fischer EP, Fischer MC, Grass D, Henrion I, Warren WS, Westman E. Low-cost measurement of face mask efficacy for filtering expelled droplets during speech. Sci Adv. Sep 2020;6(36)doi:10.1126/sciadv.abd3083
5. Verma S, Dhanak M, Frankenfield J. Visualizing the effectiveness of face masks in obstructing respiratory jets. Phys Fluids (1994). Jun 1 2020;32(6):061708. doi:10.1063/5.0016018
6. Bahl P, Bhattacharjee S, de Silva C, Chughtai AA, Doolan C, MacIntyre CR. Face coverings and mask to minimise droplet dispersion and aerosolisation: a video case study. Thorax. Nov 2020;75(11):1024-1025. doi:10.1136/thoraxjnl-2020-215748
7. Davies A, Thompson KA, Giri K, Kafatos G, Walker J, Bennett A. Testing the efficacy of homemade masks: would they protect in an influenza pandemic? Disaster Med Public Health Prep. Aug 2013;7(4):413-8. doi:10.1017/dmp.2013.43
8. Leung NHL, Chu DKW, Shiu EYC, et al. Respiratory virus shedding in exhaled breath and efficacy of face masks. Nature medicine. Apr 03 2020;26(5):676-680. doi:https://dx.doi.org/10.1038/s41591-020-0843-2
9. Bandiera L., Pavar G., Pisetta G., et al. Face coverings and respiratory tract droplet dispersion. medRxiv. 2020;doi:10.1101/2020.08.11.20145086
10. Alsved M, Matamis A, Bohlin R, et al. Exhaled respiratory particles during singing and talking. Aerosol Science and Technology. 2020;54(11):1245-1248. doi:10.1080/02786826.2020.1812502
11. Asadi S, Wexler AS, Cappa CD, Barreda S, Bouvier NM, Ristenpart WD. Aerosol emission and superemission during human speech increase with voice loudness. Sci Rep. Feb 20 2019;9(1):2348. doi:10.1038/s41598-019-38808-z
12. Morawska L., Johnson GR, Ristovski ZD, et al. Size distribution and sites of origin of droplets expelled from the human respiratory tract during expiratory activities. Aerosol Sci. 2009;40(3):256-269.
13. Abkarian M, Mendez S, Xue N, Yang F, Stone HA. Speech can produce jet-like transport relevant to asymptomatic spreading of virus. Proc Natl Acad Sci U S A. Oct 13 2020;117(41):25237-25245. doi:10.1073/pnas.2012156117
14. Ueki H, Furusawa Y, Iwatsuki-Horimoto K, et al. Effectiveness of Face Masks in Preventing Airborne Transmission of SARS-CoV-2. mSphere. Oct 21 2020;5(5)doi:10.1128/mSphere.00637-20

15. Rodriguez-Palacios A, Cominelli F, Basson AR, Pizarro TT, Ilic S. Textile Masks and Surface Covers-A Spray Simulation Method and a "Universal Droplet Reduction Model" Against Respiratory Pandemics. Front Med (Lausanne). 2020;7:260. doi:10.3389/fmed.2020.00260
16. Viola I.M., Peterson B., Pisetta G., et al. Face coverings, aerosol dispersion and mitigation of virus transmission risk. 2020. https://arxiv.org/abs/2005.10720
17. Rengasamy S, Eimer B, Shaffer RE. Simple respiratory protection–evaluation of the filtration performance of cloth masks and common fabric materials against 20-1000 nm size particles. Ann Occup Hyg. Oct 2010;54(7):789-98. doi:10.1093/annhyg/meq044
18. Konda A, Prakash A, Moss GA, Schmoldt M, Grant GD, Guha S. Aerosol Filtration Efficiency of Common Fabrics Used in Respiratory Cloth Masks. ACS nano. May 26 2020;14(5):6339-6347. doi:10.1021/acsnano.0c03252
19. Long KD, Woodburn EV, Berg IC, Chen V, Scott WS. Measurement of filtration efficiencies of healthcare and consumer materials using modified respirator fit tester setup. PLoS One. 2020;15(10):e0240499. doi:10.1371/journal.pone.024049
20. O'Kelly E, Pirog S, Ward J, Clarkson PJ. Ability of fabric face mask materials to filter ultrafine particles at coughing velocity. BMJ Open. Sep 22 2020;10(9):e039424. doi:10.1136/bmjopen-2020-039424
21. Aydin O, Emon B, Cheng S, Hong L, Chamorro LP, Saif MTA. Performance of fabrics for home-made masks against the spread of COVID-19 through droplets: A quantitative mechanistic study. Extreme Mech Lett. Oct 2020;40:100924. doi:10.1016/j.eml.2020.100924
22. Bhattacharjee S, Bahl P, Chughtai AA, MacIntyre CR. Last-resort strategies during mask shortages: optimal design features of cloth masks and decontamination of disposable masks during the COVID-19 pandemic. BMJ Open Respir Res. Sep 2020;7(1)doi:10.1136/bmjresp-2020-000698
23. Maurer L, Peris D, Kerl J, Guenther F, Koehler D, Dellweg D. Community Masks During the SARS-CoV-2 Pandemic: Filtration Efficacy and Air Resistance. J Aerosol Med Pulm Drug Deliv. Sep 23 2020;doi:10.1089/jamp.2020.1635
24. Hill WC, Hull MS, MacCuspie RI. Testing of Commercial Masks and Respirators and Cotton Mask Insert Materials using SARS-CoV-2 Virion-Sized Particulates: Comparison of Ideal Aerosol Filtration Efficiency versus Fitted Filtration Efficiency. Nano Lett. Oct 14 2020;20(10):7642-7647. doi:10.1021/acs.nanolett.0c03182
25. Whiley H, Keerthirathne TP, Nisar MA, White MAF, Ross KE. Viral Filtration Efficiency of Fabric Masks Compared with Surgical and N95 Masks. Pathogens. Sep 17 2020;9(9)doi:10.3390/pathogens9090762
26. Hao W, Parasch A, Williams S, et al. Filtration performances of non-medical materials as candidates for manufacturing facemasks and respirators. Int J Hyg Environ Health. Aug 2020;229:113582. doi:10.1016/j.ijheh.2020.113582
27. van der Sande M, Teunis P, Sabel R. Professional and home-made face masks reduce exposure to respiratory infections among the general population. PLoS One. Jul 9 2008;3(7):e2618. doi:10.1371/journal.pone.0002618
28. Chu DK, Akl EA, Duda S, et al. Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis. Lancet. Jun 27 2020;395(10242):1973-1987. doi:10.1016/S0140-6736(20)31142-9
29. Clase CM, Fu EL, Ashur A, et al. Forgotten Technology in the COVID-19 Pandemic: Filtration Properties of Cloth and Cloth Masks-A Narrative Review. Mayo Clin Proc. Oct 2020;95(10):2204-2224. doi:10.1016/j.mayocp.2020.07.020
30. Wang X, Ferro EG, Zhou G, Hashimoto D, Bhatt DL. Association Between Universal Masking in a Health Care System and SARS-CoV-2 Positivity Among Health Care Workers. JAMA. Jul 14 2020;doi:10.1001/jama.2020.12897
31. Mitze T., Kosfeld R., Rode J., Wälde K. Face Masks Considerably Reduce COVID-19 Cases in Germany: A Synthetic Control Method Approach. 2020. ISSN: 2365-9793, DP No. 13319. http://ftp.iza.org/dp13319.pdf
32. Gallaway MS, Rigler J, Robinson S, et al. Trends in COVID-19 Incidence After Implementation of Mitigation Measures – Arizona, January 22-August 7, 2020. MMWR Morb Mortal Wkly Rep. Oct 9 2020;69(40):1460-1463. doi:10.15585/mmwr.mm6940e3
33. Van Dyke ME, Rogers TM, Pevzner E, et al. Trends in County-Level COVID-19 Incidence in Counties With and Without a Mask Mandate – Kansas, June 1-August 23, 2020. MMWR Morb Mortal Wkly Rep. Nov 27 2020;69(47):1777-1781. doi:10.15585/mmwr.mm6947e2
34. Lyu W, Wehby GL. Community Use Of Face Masks And COVID-19: Evidence From A Natural Experiment Of State Mandates In The US. Health Aff (Millwood). Aug 2020;39(8):1419-1425. doi:10.1377/hlthaff.2020.00818
35. Hatzius J, Struyven D, Rosenberg I. Face Masks and GDP. Updated June 29, 2020. Accessed July 8, 2020. https://www.goldmansachs.com/insights/pages/face-masks-and-gdp.html
36. Karaivanov A., Lu S.E., Shigeoka H., Chen C., Pamplona S. Face Masks, Public Policies And Slowing The Spread Of Covid-19: Evidence from Canada. 2020. Working Paper 27891. http://www.nber.org/papers/w27891
37. Joo H, Miller GF, Sunshine G, et al. Decline in COVID-19 Hospitalization Growth Rates Associated with Statewide Mask Mandates — 10 States, March–October 2020. MMWR. February 12, 2021 / 70(6);212–216

38. Chernozhukov V, Kasahara H, Schrimpf P. Causal Impact of Masks, Policies, Behavior on Early Covid-19 Pandemic in the U.S. medRxiv. 2020;doi:10.1101/2020.05.27.20115139
39. Guy GP, Jr., Lee FC, Sunshine G, et al. Association of State-Issued Mask Mandates and Allowing On-Premises Restaurant Dining with County-Level COVID-19 Case and Death Growth Rates – United States, March 1-December 31, 2020. MMWR Morb Mortal Wkly Rep. Mar 12 2021;70(10):350-354. doi:10.15585/mmwr.mm7010e3
40. Leffler CT, Ing E, Lykins JD, Hogan MC, McKeown CA, Grzybowski A. Association of Country-wide Coronavirus Mortality with Demographics, Testing, Lockdowns, and Public Wearing of Masks. Am J Trop Med Hyg. Dec 2020;103(6):2400-2411. doi:10.4269/ajtmh.20-1015
41. Rader B, White LF, Burns MR, et al. Mask-wearing and control of SARS-CoV-2 transmission in the USA: a cross-sectional study. The Lancet Digital Health. 2021/01/19/ 2021;doi:https://doi.org/10.1016/S2589-7500(20)30293-4
42. Hendrix MJ, Walde C, Findley K, Trotman R. Absence of Apparent Transmission of SARS-CoV-2 from Two Stylists After Exposure at a Hair Salon with a Universal Face Covering Policy – Springfield, Missouri, May 2020. MMWR Morb Mortal Wkly Rep. Jul 17 2020;69(28):930-932. doi:10.15585/mmwr.mm6928e2
43. Wang Y, Tian H, Zhang L, et al. Reduction of secondary transmission of SARS-CoV-2 in households by face mask use, disinfection and social distancing: a cohort study in Beijing, China. BMJ Glob Health. May 2020;5(5)doi:10.1136/bmjgh-2020-002794
44. Doung-Ngern P, Suphanchaimat R, Panjangampatthana A, et al. Case-Control Study of Use of Personal Protective Measures and Risk for Severe Acute Respiratory Syndrome Coronavirus 2 Infection, Thailand. Emerg Infect Dis. Sep 15 2020;26(11)doi:10.3201/eid2611.203003
45. Payne DC, Smith-Jeffcoat SE, Nowak G, et al. SARS-CoV-2 Infections and Serologic Responses from a Sample of U.S. Navy Service Members – USS Theodore Roosevelt, April 2020. MMWR Morb Mortal Wkly Rep. Jun 12 2020;69(23):714-721. doi:10.15585/mmwr.mm6923e4
46. Schwartz KL, Murti M, Finkelstein M, et al. Lack of COVID-19 transmission on an international flight. Cmaj. Apr 14 2020;192(15):E410. doi:10.1503/cmaj.75015
47. Freedman DO, Wilder-Smith A. In-flight Transmission of SARS-CoV-2: a review of the attack rates and available data on the efficacy of face masks. J Travel Med. Sep 25 2020;doi:10.1093/jtm/taaa178
48. Shein SL, Whitticar S, Mascho KK, Pace E, Speicher R, Deakins K. The effects of wearing facemasks on oxygenation and ventilation at rest and during physical activity. PLoS One. 2021;16(2):e0247414. doi:10.1371/journal.pone.0247414
49. Chan NC, Li K, Hirsh J. Peripheral Oxygen Saturation in Older Persons Wearing Nonmedical Face Masks in Community Settings. JAMA. Dec 8 2020;324(22):2323-2324. doi:10.1001/jama.2020.21905
50. Samannan R, Holt G, Calderon-Candelario R, Mirsaeidi M, Campos M. Effect of Face Masks on Gas Exchange in Healthy Persons and Patients with Chronic Obstructive Pulmonary Disease. Ann Am Thorac Soc. Mar 2021;18(3):541-544. doi:10.1513/AnnalsATS.202007-812RL
51. Mapelli M, Salvioni E, De Martino F, et al. "You can leave your mask on": effects on cardiopulmonary parameters of different airway protection masks at rest and during maximal exercise. Eur Respir J. Mar 7 2021;doi:10.1183/13993003.04473-2020
52. Roberge RJ, Kim JH, Benson SM. Absence of consequential changes in physiological, thermal and subjective responses from wearing a surgical mask. Respir Physiol Neurobiol. Apr 15 2012;181(1):29-35. doi:10.1016/j.resp.2012.01.010
53. Epstein D, Korytny A, Isenberg Y, et al. Return to training in the COVID-19 era: The physiological effects of face masks during exercise. Scand J Med Sci Sports. Jan 2021;31(1):70-75. doi:10.1111/sms.13832
54. Hopkins SR, Dominelli PB, Davis CK, et al. Face Masks and the Cardiorespiratory Response to Physical Activity in Health and Disease. Ann Am Thorac Soc. Mar 2021;18(3):399-407. doi:10.1513/AnnalsATS.202008-990CME
55. U.S. Centers For Disease Control and Prevention. Your Guide to Masks. Available: https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/about-face-coverings.html. [accessed: 12/19/2021]
56. U.S. Centers For Disease Control and Prevention. COVID Data Tracker. Available: https://covid.cdc.gov/covid-data-tracker/#county-view. [accessed: 12/19/2021]
57. U.S. Centers For Disease Control and Prevention. Requirement for Face Masks on Public Transportation Conveyances and at Transportation Hubs. Available: https://www.cdc.gov/coronavirus/2019-ncov/travelers/face-masks-public-transportation.html. [accessed: 12/19/2021]